

REMARKS

Claims 1-18, 37-41, 44, 55-69 and 81 are currently pending in the captioned patent application. For at least the reasons set forth below, applicant respectfully requests reconsideration of the Office Action rejections.

Rejections under 35 U.S.C. §103

Claims 1, 4, 6, 7, 10, 12, 13, 16, 18, 37, 40, 44, 55, 58, 60-63 and 65-67 have been rejected under 35 U.S.C. §103 as being unpatentable over a proposed combination of Knobloch (U. S. Pat. No. 3,043,499) with Robert (U. S. Pat. No. 5,566,781).

In summary, Knobloch describes a “process for circulating gaseous media, such as hot gases or vapors or gas-vapor mixtures under high pressure in chemical processes, and describes pumping plants for carrying out this process.” Knobloch, col. 1, lines 15-19. Also, Knobloch in more detail states (at col. 1, lines 50-72): “In the practice of our invention there are used simple or double acting gas circulating piston pumps in which the clearance is formed wholly or at least partially by oscillatory conduits. These oscillatory conduits connect the pump cylinder with the valves . . . At a stroke of the piston, only that part of the oscillatory conduit is filled with hot gas which lies nearest to the valve chest and of which the volume approximately corresponds to the stroke volume of the piston. The amount of gas sucked by the suction stroke is immediately forced out again from this part of the oscillatory conduit towards the hot side upon the pressure stroke. The pump end of the oscillatory conduit takes in the cold gas forced out by the piston, up to an amount which again corresponds to the stroke volume of the piston. The conduit containing the oscillating amount of the cycling medium is thus divided into a hot

section and a cold section. In order to prevent the equalization of heat between the two parts of the gaseous medium . . . it is good practice to provide a separation of the two sections, for example by an inbuilt cooler.”

It can be seen that the technical problems addressed by Knobloch are very different in comparison to the technical problems addressed by various embodiments of the present invention. Knobloch alternates circulating hot gases and cold gases between different sections of its fluid system through use of its oscillatory conduits. In contrast, the “flow control valve in direct fluid communication with the inlet/outlet port” of Claim 1 of the present application facilitates performing, for example, substantially complete fluid evacuation and fluid refilling procedures from an “inlet/outlet port in direct fluid communication with said inlet of said first check valve and in direct fluid communication with said outlet of said second check valve at the common refill/evacuation location.” The structure of Knobloch cannot function to perform fluid evacuation and refill operations similar to the procedures that can be accomplished by the structure of the valve assembly recited in Claim 1.

The Office Action correctly acknowledges that Knobloch does not have “a flow control valve in direct fluid communication with the inlet/outlet port” as recited in Claim 1. However, in attempting to cure this deficiency in Knobloch by a proposed combination with Robert, the Office Action states that, “Robert discloses that it is known in the art to employ a ‘flow control valve’ at valve 63, in communication with an inlet/outlet port at fitting 68, which fitting 68 is located within a recirculating fluid circuit, for the purpose of controlling the flow of fluid within the fluid line in which valve 63 is located such that, depending on the pressure differential in that line, fluid flows to and/or from the fluid recirculating circuit. It would have

been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Knobloch et al. a valve located in any portion of fluid line 4, including conduit 12, for the purpose of controlling the flow of fluid within the fluid line in which this is located such that, depending on the pressure differential in that line, fluid flows to and/or from the fluid recirculating circuit, such as flowing to and/or from the valve chests 5, 5a, as recognized by Robert et al.” See Office Action, pp. 3-4.

However, applicant submits that the teachings of Knobloch require use of oscillating conduits to maintain a hot section and a cold section within the Knobloch fluid system. Controlling fluid movement based on rate of flow or pressure differential with a control flow valve as suggested in the Office Action is not taught, suggested or disclosed by Knobloch. The Knobloch apparatus does not need “a flow control valve in direct fluid communication with the inlet/outlet port,” because its apparatus is structured for alternately circulating gaseous media, such as hot gases under high pressure in chemical processes, through its fluid system. Accordingly, attempting to apply the teachings of Robert to Knobloch in the way proposed in the Office Action amounts to at least a partial destruction of the Knobloch references, if not both references.

Also, Knobloch (at col. 2, lines 60-63) states: “Our invention furthermore provides locating the circulating pump far from the reaction apparatus, for example, in a powerhouse, while the valves are arranged directly at the apparatus.” It is apparent that Knobloch teaches away from the teachings of the present claims, in that a valve assembly structured in accordance with embodiments of the present invention is provided with “the inlet/outlet port in direct fluid communication with said inlet of said first check valve and in

direct fluid communication with said outlet of said second check valve at the common refill/evacuation location; and, a flow control valve in direct fluid communication with the inlet/outlet port.” (emphasis added). In contrast, Knobloch intentionally structures a remote relationship between its circulating pump and its valve assemblies. Whereas the valve assembly of the present application is instead structured for connection to a pump or another “fluid component” directly at a nexus of the check valves, the inlet/outlet port, and the flow control valve.

Applicant respectfully submits that for at least the above reasons, Claims 1, 4, 6, 7, 10, 12, 13, 16, 18, 37, 40, 44, 55, 58, 60-63 and 65-67 are not anticipated by Knobloch or Robert, either alone or in combination as proposed in the Office Action.

In addition, each of independent Claims 7, 37, 55, 68, and 81 are allowable for at least reasons analogous to those described above with regard to Claim 1. Furthermore, the pending dependent claims which depend from, either directly or indirectly, allowable independent claims are also allowable for the same reasons as their respective independent claims. Applicant submits that the dependent claims are not obvious by virtue of their dependence from allowable independent claims, as well as on their own merits.

Reservation of Arguments

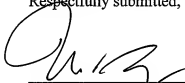
Applicant submits that the dependent claims pending herein are allowable at least by virtue of their dependency on independent claims which, as applicants describe above, are patentable over the cited references. Applicant reserves the right, however, to make supplemental arguments as may be necessary, because the dependent claims of the present

application include additional features that further distinguish the claims from the cited references. A detailed discussion of these distinctions is believed to be unnecessary at this time in view of the fundamental distinctions already set forth in the above remarks.

SUMMARY

Based on the foregoing remarks, applicant respectfully requests reconsideration and allowance for the pending claims of the present application. To expedite prosecution of the application, the Examiner is invited to contact the undersigned representative with any questions regarding this response.

Respectfully submitted,



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